

REMARKS/ARGUMENTS

Favorable reconsideration of this application is respectfully requested.

Claims 1-32 are pending in this application. Claims 24-32 are added by the present response. Claims 1, 2, 10, 11, 19, and 20 were rejected under 35 U.S.C. § 102(e) as anticipated by U.S. patent 6,381,376 to Toyoda. Claims 3-9, 12-18, and 21-28 were rejected under 35 U.S.C. § 103(a) as unpatentable over Toyoda in view of JP 2000-103177 to Ricoh.

Addressing the above noted rejections, those rejections are traversed by the present response.

Applicants respectfully submit the outstanding rejection is not properly construing the claimed features relative to the features in the applied art.

Independent claim 1 is directed to an image forming apparatus that includes a pattern detecting device configured to detect whether or not a pattern is constructed with a ***lengthwise line of a single dot width*** on a basis of a pattern of respective multi-value data of a target pixel and circumferential pixels adjacent to the target pixel in a main scanning direction. A printing device is configured to print ***size-reduced*** printing dots of the lengthwise line of the single dot width detected by the pattern detecting device. The other independent claims set forth similar features.

Applicants respectfully submit the above-noted features clearly differ from the teachings in Toyoda.

With reference to Figures 12A-12D in the present specification, a non-limiting example of an implementation of the present invention is set forth. Figure 12A shows a pattern constructed with a lengthwise line of a single dot width. The applicants of the present invention recognized that when trying to reproduce an image with a lengthwise line of a single dot width, a width of the printed image may become enlarged, such as shown for example in Figure 12C. The claimed invention addresses and overcomes such a drawback.

In the claimed invention a pattern of respective multi-value data of a target pixel and circumferential pixels adjacent to the target pixel in a main scanning direction are detected; e.g. the pattern shown in Figure 12B is detected. Based on detecting such a pattern as shown in Figure 12B, including a *lengthwise line of the single dot width*, the claimed invention implements a control in a printing device to print *size-reduced* printing dots of the lengthwise line of the single dot width, and thereby in the claimed invention the image as shown in Figure 12D is printed. That image in Figure 12D has a thinner lengthwise line of the single dot width than that in Figure 12C. That is, by implementing the claimed invention a more accurate reproduction can be realized such as shown in Figure 12D rather than outputting the image in Figure 12C.

The claimed features and operations are believed to clearly distinguish over the teachings in Toyoda.

The outstanding rejection cites the teachings in Toyoda at column 4, lines 13-15 and column 4, line 32 to column 7, line 45 to meet the claim limitations. However, applicants respectfully submit Toyoda is directed to a completely different device with completely different objectives than in the claims.

Toyoda is directed to a device that outputs a plurality of input images as a single image by connecting the input images to partially overlap.¹ Toyoda is further directed to a device that can restore the single image by connecting the plurality of input images accurately whether the input images are character, shadow, or picture images.²

In such ways, Toyoda is not directed to a device even similar to the claimed invention. That is, Toyoda is not directed to a device that detects whether or not a pattern is constructed with a *lengthwise line of a single dot width* based on a pattern of respective multi-value data of a target pixel and adjacent pixels. The disclosure in Toyoda at column 4,

¹ Toyoda at column 1, lines 7-10.

² Toyoda at column 1, line 65 to column 2, line 2.

lines 13-14 and column 4, line 32 to column 7, line 45 has no similar teachings to the above-noted features.

Moreover, at no portion does Toyoda disclose or suggest any printing device that can print *size-reduced* printing dots of the lengthwise line of the single dot width.

As discussed above, in the claimed invention when the lengthwise line of a single dot width is detected the lengthwise line of the single dot width is printed in size-reduced printing dots. Such features are not taught, nor suggested, nor even alluded to in Toyoda.

Moreover, no teachings in Ricoh can overcome the above-noted deficiencies in Toyoda.

In such ways, applicants respectfully submit claims 1-28 as currently written distinguish over the applied art.

The present response also sets forth new claims 29-32 for examination. The subject matter in those new claims is similar to subject matter recited for example in original dependent claims 6, 15, and 24. Particularly, those claims are directed to a feature in the present invention that prevents a collapse of a thin white line of a single dot width or less. As shown for example in Figure 7 of the present specification as a non-limiting example, in Examples Dp10 and Dp11 a pattern detecting device can detect whether or not a pattern is constructed with a white line of a single dot width or less, when the line has a shape matching the reference pattern as shown in Dp10 and Dp11. Further, when such a line is detected an image density and image portion of the line matching with the reference pattern is reduced by performing a printing operation with smaller printing dots of the white line of the single dot width or less. The above-noted features recited in new claims 29-32 are believed to also clearly distinguish over the applied art, and thus those new claims are also believed to be clearly allowable.

As no other issues are pending in this application, it is respectfully submitted that the present application is now in condition for allowance, and it is hereby respectfully requested that this case be passed to issue.

Respectfully submitted,

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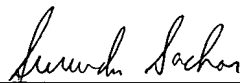
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